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Elbow-room in the Country.

IT is a curious fact that the dwellers in rural towns who might easily supply themselves with plenty of land if they were willing to desert the main street, choose by preference a small lot with closely contiguous neighbors rather than strike out for themselves in a new direction. We can understand that, in the early settlement of a community, the inhabitants would naturally cluster together for companionship and protection, but when a village is fairly established it seems a pity that people should not realize how much better it is to have room to exercise their taste in cultivation, and also a place where the seclusion and privacy of a country life can be truly enjoyed. Life on the village street is less retired than in the busiest thoroughfare of a great city, for as there is not much to occupy the mind of the dwellers in small towns, the goings out and comings in of the neighbor are a matter of interest and gossip, and one can be pretty sure of a free discussion and intimate understanding of his domestic affairs by the lady over the way or behind the rear fence. Why people should submit to this, when, for the same amount of money, they might furnish themselves with ample elbow-room, is one of the puzzles which our race supplies freely for the philosopher.

When a man from the city chooses a spot a little remote from the others, he is thought to be living "in the woods" or "out in the lot," and much wonder is expressed that he should find anything in such a distant locality to make it worth his while to build there. A walk of half a mile is apt to preclude anything like "dropping in" in a village neighborhood, and really seems to shut the owner of a considerable farm out of the social current which flows up and down the main street of a village, but rarely branches off. People of limited means do not seem to value the resources and delights of country living as they deserve, nor do they readily learn to find pleasure in outdoor pursuits nor recognize the quiet satisfactions which the thoughtful and practical can alike find in the effort to adorn and make fertile an acre or two of ground. Yet, converse with woods and fields, with shrubs and flowers, is more valuable to the spirit than village-gossip, nor need it preclude human sympathy of the broadest kind. Possibly our British brothers are right when they set the land-owner above the Philistine, and measure a man's social consequence not by his money but by his acres

As in most social distinctions, there is some sort of instinctive basis for ranking a cultivator of his own acres above a shop-keeper, it implies a different order of faculties, a certain dignity of possession, "a stake in the country," as the English put it, so that the first impulse of a man, after he has made his shop-keeping a success, is to own a bit of his tight little island, and thereby establish a claim to some local distinction. Land is so cheap and plenty as yet in this country that we have not begun to value it as it deserves. A man appreciates the number of square feet of his possessions in a city, and by no means lacks appreciation of his ground-rents; but there ought to be a feeling for the soil of one's native land in the country quite apart from its mercantile value, so that one should start in life with an ambition to possess finally a bit of it, which would save more of our surface for the native American.

For in the Irishman is born the true passion to own a farm, which is the secret of their prosperity in the rural districts. It is astonishing to see how, with so many mouths to feed, and such limited means of feeding them, the Celt will acquire his Potato-patch, and hold on to it and add to it under the nose of his indifferent Yankee neighbor, refusing to part with it, though sorely pressed, and holding it always at a price he would never be willing to pay for it. This habit which we recognize, and laugh at good-humoredly, it would be well for Americans to acquire in time to keep some of the country for themselves. It is not enough to own a house-lot; it is a good thing to have land to cultivate for ornament if not for profit, if people have money to spend, and are at a loss for steady amusement and occupation. To such the cultivation of a garden promises a new delight—an unfailing interest; and by a garden we mean not merely shrubs and flowers, but the garden in a larger sense, as the expression of taste and artistic feeling and skillful planning, so that even the useful may contribute to the beauty of a place, and everything form an essential part of a harmonious and pleasing picture.

And we urge the acquirement of land by our people because it is a taste that grows upon one. No sooner does a man acquire one acre than he wants two; give him five, and he desires ten; a hundred, and he clamors for more, so it is well in purchasing a country-place to get enough in the beginning to make your work worth while, and to keep your lines sufficiently remote from your dwelling to avoid the discomfort of near neighbors, who sooner or later will become an oppression. For the desire for elbow-room grows upon one as he cultivates; he ever desires to add to his possessions, to extend his boundaries, to subjugate more and more of the earth to his use or pleasure, and this is a good and wholesome desire, which he does well to gratify, for, according to old Cowley, it is the garden which was God's first gift to man:

> For well He knew what place would best agree
> With innocence and with felicity;
> And we elsewhere still seek for them in vain;
> If any part of either yet remain,
> If any part of either we expect,
> This may our judgment in the search direct,
> God the first garden made, and the first city Cain.

A CERTAIN French paper, says an editorial paragraph in a recent number of the *American Architect and Building News*, "describes a novelty which we commend to the attention of landscape-gardeners and park commissioners. There is now on exhibition in Paris, near the Trocadéro, a horticultural clock. This object consists of a bed of Alternantheras, Lobelias, Echeverias and the other proper-

ties of carpet-gardening, forming a huge disk, thirty-three feet in diameter, with the usual figures and dots of a clock-dial around the edge. On the dial move two long poles, decorated with flowers, and forming the hands of this novel clock, which keeps time with sufficient regularity. The hands are attached by a simple mechanism, sunk below the centre of the bed, and driven by a small water-motor. Where circumstances favored, we should say that an improvement on the carpet-bed dial might be made by surrounding a circular tank of aquatic plants with a sloping bank, on which the figures of the clock-dial could be made with the usual dwarf variegated plants, the whole being surrounded by a railing. It would be easy to set a box, containing the mechanism for driving the hands, in the middle of the tank, and the waste water from the motor could be utilized as the regular tank supply." These words are a surprise in a journal which usually upholds good taste in horticultural as in other matters. The guardians of our parks and the gardeners who make them need to be told that horticultural arrangements should be artistic, and not of a kind calculated to encourage a crude taste by creating showy horticultural toys which appeal to childish curiosity. These arrangements must be either of a natural sort or of a formal and palpably artificial sort, according to existing conditions. But, whatever the type, the same canons of taste which govern the proper ornamentation of a building ought to control the ornamentation of a garden or park. This fact is the one which most needs teaching—the fact that gardening is an art in as true a sense as painting, sculpture or architecture. To imitate a dial-plate with flowers and set wooden or metallic hands to moving around it by clock-work is not to design as an artist would. The arrangement which the *American Architect* commends is of the same class as the striking "floral devices" which often encumber our parks, cemeteries and the lawns of country-places. If Paris has its floral clock, Chicago has its floral sun-dial, the shadow upon which is cast by a tall inclined post composed of House-leeks. The fact that this style is common in Europe may explain its existence here but cannot excuse it.

The Woodcock Oak.

THE White Oak is one of the most familiar trees in the forests of north-eastern America, and yet we rarely see a tree of this species which has reached its full lateral expansion. The primeval Oaks of our forests grew like other forest-trees, with long, straight stems, and when the forests were cleared away, if individual trees were left standing, they showed nothing of the character which they would have had if they had grown in the open ground. At least a century is required for one of these Oaks to reach maturity, and much more than a century is needed before it attains those dimensions which mark it among our other trees as the very type of sturdiness and strength. Since the first clearings were made only an individual here and there has been allowed an opportunity to throw out its huge branches with the bold horizontal sweep which characterizes the tree in our illustration on page 450.

We have already published pictures of several famous White Oak-trees, including the Waverly Oaks, but only when we have portraits of several individuals can the full expresssion of the tree be apprehended. We are, therefore, glad to give an illustration of this "Woodcock Oak," as it is called, which stands about four miles east of Bedford Station, and one mile west of Bedford village, in Westchester County, New York. It is near the angle made by the Hook road and the highway between the two points mentioned above. Five feet above the ground it measures fourteen feet two inches in circumference, and two feet above the ground its girth is nearly seventeen feet. Its branches cover a circle of a hundred feet in diameter, and it is in all its proportions worthy to be classed among the notable trees of a region where fine trees are not rare.

Pine Bank.

ONE of the most beautiful spots which have been acquired by the energetic Park Commission of Boston for the refreshment of their fellow-citizens is the old estate called Pine Bank, on the border of Jamaica Pond. As the readers of Garden and Forest have already been told, the urban pleasure-ground called the Back Bay Fens, recently laid out by Mr. Olmsted, is to be connected with the Arnold Arboretum by the Riverdale Parkway, which will skirt Jamaica Pond; and several estates fronting on the pond, which is really a good-sized lake, have already been secured for this purpose. None of them is as beautiful or as peculiar in its beauty as Pine Bank, long the homestead of the Perkins family. This consists of some fourteen acres of thickly wooded ground, considerably elevated above the water-level and approached by Perkins Street. The original house was built in 1802. In 1847 it was torn down and a new one erected; this was destroyed by fire in 1869, and the present dwelling was constructed on the same site, I believe by a French architect. It is a two-story building of stone and terra-cotta, with three gables and a square projecting porch on the principal or lawn front. The carriage-drive sweeps up to the doorway on the opposite front, passing through thick growths of fine trees—Pines, Elms, Maples, Birches, Poplars and Buttonwoods. Here nature has not been conspicuously interfered with, only just enough to make the drive seem not a wild woodland road, but a fitting approach to a dignified home. Near the house are two deep, roundish, natural depressions in the ground, lovely grassy basins, which give this part of the place an individual accent, looking like little green ponds overhung with shadowy trees. On either side of the house the trees approach it nearly, and the stables are so shielded by them as not to be a disturbing element in the scene, as they too often are in small American country-places.

The other side of the grounds, fronting on the water, are still more attractive. Here the verdant surroundings are not disturbed by drive-ways or walks. The porch opens directly upon the lawn, and the smooth emerald grass extends for a considerable distance to the border of the steep high banks which overhang the pond. There are no flower-beds and no disturbing horticultural embellishments of any kind. But on either side the lawn is enframed by the thick naturally growing masses of trees, and in front the water and the opposite shore of the pond are seen through a screen of big Pine-trunks and feathery foliage, so that no more truthfully expressive name than Pine Bank could have been chosen for this delightful home. When I visited it some years ago it was uninhabited, and its effect was as of the home of some Sleeping Princess, where summer must perpetually reign, for the thick plantations absolutely shut out the noisy world behind it, and so screened the water-view that one found it hard indeed to remember that a big and busy city lay only a few miles away, and that other homes of busy modern people might be reached by a few moments' walk. Nothing more exquisitely retired and self-contained, nothing more poetically beautiful, complete and slumberous, could be imagined than Pine Bank as it then appeared; and when one recollected that the days of fairy-tales were over, and sought for an actual modern purpose to which Pine Bank might appropriately be put, it seemed as though it ought to be bought by some sentimental philanthropist and its name changed to "Honeymoon Hall," to signify that it would perpetually be preserved as a place of retirement for successive young couples unable to fly for a brief period further afield.

Now it is to be given to the people of Boston for their perpetual use, the handsome house will be preserved, and, I hope, the grounds will not be altered. Very few such charming and individual spots can exist in the neighborhood of our large towns; and this one will be invaluable as an object-lesson in the great art of treating—or of letting alone—home-grounds of an essentially woodland character. The flight of worn stone steps which leads down from the edge of the lawn to the water-side, originally belonged to the old Hancock House on Beacon Street, in Boston, and was secured by Mr. Perkins when this house was destroyed. "They are valuable as relics," writes Mr. Perkins now to the Park Commissioners, "because the most distinguished persons of colonial and revolutionary times have ascended and descended them in going to and from the hospitable door of the old mansion-house." I think they could not be put to a better use to-day than to serve the tired artisans and lively boys of Boston as an approach to the pleasure-boats which, one fancies, will be provided for their use beneath the edge of the beautiful lawn of Pine Bank.

For one, I am thankful to the Park Commissioners of Bos-

ton for bringing this beautiful place to general attention, and for the opportunity to praise its beauty, and to say that the one visit to Pine Bank remains among the fairest of those pictures which every traveler preserves in a special little inner mental gallery, apart from thousands of others which, despite greater magnificence or more striking associations, are nevertheless not his best and dearest. If I tried to count over a dozen scenes which had most poetically spoken to my imagination as well as delighted my eyes, one among them would surely be the picture of Pine Bank on a hot summer afternoon when the sunlight slanted through the Pines, touching to green-gold the grass which looked as though no foot heavier than a fairy princess's had trodden it for years, and turning the pretty sheet of water beyond the screen of whispering Pines into a stainless azure mirror. Good days have, indeed, dawned for the people of our large towns when such spots as this are secured for their perpetual pleasuring.

New York. *M. G. Van Rensselaer.*

Native Shrubs of California.—VIII.

OF the Ceanothus genus, or California Lilacs, as they are not inaptly called, there is so great a variety on all our hills and mountains that one scarcely knows with which to begin the account. They are a large part of that almost impenetrably dense brushwood, called "chaparral," which covers middle elevations of the Coast-range, forming a distinct belt between the herbaceous vegetation of the foot-hills and the forest-growth on the highest ridges and summits. Another series of species, distinct from those of the Coast-range, inhabit the Sierra Nevada, and are more commonly interspersed among the forests, or along the borders, mingling with other woody growths.

Among the Coast-range species, C. thyrsiflorus holds a conspicuous place in point of ornamental qualities. Though often flowering profusely as a shrub six or eight feet high, under favorable conditions it matures into a shapely tree twenty-five feet or more in height. In habit it is compact as the Lilac, with green-barked branches and twigs, and a deep, glossy three-ribbed foliage. It is strictly evergreen and flowers more or less freely from March to May, the color of the large, dense clusters being a perfect blue. In any collection of ornamental shrubs it should hold a welcome place. Twenty years ago it was no rarity upon the lawns and shrubberies in the northern parts of San Francisco, where it had been spared when other and less attractive native growths had been cleared away for the establishment of homes. This species is not found away from the seaboard, nor has it an extensive range along the coast. It is, I believe, hardy in England, where it has been much admired, though in that climate it is not well at home, if we may judge from Lindley's figure in the *Botanical Register* (vol. xxx., t. 38), in which it appears with a comparatively pale foliage and lax clusters of light blue flowers, altogether of inferior beauty compared with the shrub on its native hills.

On the flanks of Mount Tamalpais, and in many like situations among the Coast-range hills, grows C. sorediatus, very unlike C. thyrsiflorus in habit, and displaying a greater profusion of bloom in very small clusters. Although its branches and branchlets are short, stiff, and even somewhat spinescent, they have a curving tendency which gives to the bush, in a mass, a rounded, rather than angular outline, and the whole surface of a well-grown specimen in full flower appears like a billowy mass of sky-blue, the flower-clusters, though small and short-stalked, decking every twig. Many years ago some small plants were transferred from the adjacent hills to the university grounds at Berkeley, where they have ever since been subjected to an annual clipping by the workmen on the grounds, and reduced to solid hemispherical or conical outlines. These plants have suffered little by this unkindly treatment, and each spring, for weeks together, they are like leafless cones of blue, the flowers quite concealing the foliage. This hardy native is one of the best shrubs for edging purposes, whether desired for usefulness or ornamentation. Like C. thyrsiflorus, it is evergreen, the foliage small and of rounded outline.

Every one who has journeyed to any part of the Sierra Nevada in early summer has admired C. integerrimus. This is a large shrub of loose and open growth, with thin sea-green foliage and very conspicuous long-stalked clusters of flowers, prevailingly white, though occasionally pale blue. It has not the merit of perennial verdure, the foliage being mainly deciduous, and for this reason, although it is perhaps the most beautiful of all Ceanothi when in full bloom, it is not particularly attractive at other seasons. The Coast-range counterpart of this species is the somewhat rare C. Andersonii, with more abundant foliage than C. integerrimus. The leaves are smaller and the panicles of white flowers at least equally conspicuous and more profuse. It has been found only in the neighborhood of Santa Cruz, but the botany of the mountains southward is yet scarcely explored, and C. Andersonii is in all probability established there. In the Santa Barbara region of the Coast-range is C. spinosus, another exceedingly handsome species of the larger and arborescent class. This has glossy evergreen leaves of small size, and ample clusters of light or deep blue flowers. It takes its specific name from the fact that many of the branches end in sharp, leafless, spur-like, or, rather, thorn-like points. Across the channel from Santa Barbara, on the large island of Santa Cruz and one or two neighboring islets, is found a peculiar Ceanothus, extremely unlike any mainland species, and the largest member of the genus. It was discovered by the writer in 1886, and named C. arboreus, in reference to its great size, clean tree-like trunk and well-rounded head. Its broad and ample foliage is white underneath, and the flower-clusters white or pale blue. In Professor Sargent's *Silva of North America* this is figured as a variety of C. velutinus, to which it seems to me to be as little related as to any species of the genus. It has one close ally, however, in a Mexican species, C. azureus. This has a more elongated and relatively narrow foliage, but the same texture, pubescence and whiteness beneath. It is an interesting fact that all the discoverable connections of the novel and interesting flora of the islands off Santa Barbara are with Mexico rather than with California. Upon the mainland mountains behind Santa Barbara is another Ceanothus of arborescent growth, in habit like a Wild Plum-tree. In late February its head is a mass of white bloom, so great is the profusion of small clusters of flowers on every branch and twig. This is C. megacarpus, a sort so rare as to have been but seldom seen even by a botanist. It may, perhaps, not be infrequent along the higher summits of mountains in the unexplored districts of southern California.

Among shrubby species of Ceanothus is the surpassingly pretty C. foliosus, with very small crisped or almost curled foliage of the darkest green, which is half-hidden at flowering-time under the many small, roundish stalked clusters of indigo-blue. It is only a foot or two in height, but with countless widespread branches, so that it forms a dense low thicket, almost completely covering the mountain-slopes in its own peculiar region, the foot-hills of Mt. St. Helena of the inner Coast-range. At the lowest elevations, just bordering the Napa valley, in the same general district, we have a somewhat closely related, but large and graceful, blue-flowered sort in C. Parryi, the original specimens of which were obtained by Dr. Parry from the shrubbery in front of a vineyardist's residence, whose good taste had left to them their foothold on the soil when other bushes had been cleared away. It is quite common in that region.

It is not possible, in a short account, to make special mention of more than one in ten of the entire list of Californian Ceanothi, though almost all are beautiful. But I am unwilling to conclude without speaking of two of the humbler sorts which adorn each its own place in the woods of the Sierra Nevada. In the heart of the great Pine district of the middle Sierra, a slender, low, half-trailing species, C. diversifolius, is singular in that it covers the ground throughout extensive open forests with a perennial verdure; and this is saying much for any plant in the middle mountains, where the forests in the main have no undergrowth which is not as short-lived as the rainy season of the year, and when all through the months of summer and autumn everything under the Pines and Redwoods is as brown and sere as upon the open plains below. C. diversifolius, wrongly called C. decumbens in older books, is semi-herbaceous, with broad, thin, soft foliage, and in all but its trailing habit and blue flowers is much like the familiar eastern species, C. Americanus. C. Americanus, by the way, as it now blooms in our university garden, is apparently quite at home on this side of the continent, and no white-flowered Californian species is prettier. In the Sierra, at higher elevations than are reached by C. diversifolius, grows a stout, prostrate, densely matted Ceanothus, with evergreen, prickly foliage and rather inconspicuous blue flowers, forming usually a close carpet under the trees. The school-children in mountain districts call it Squaw Mats, or Mahala Mats, the old Hebrew name Mahala having become for some reason the popular designation of the feminine membership of the Digger Indian tribe. The shrub is evergreen and very hardy, as well as compact and low, and has been spoken of as possibly useful for hiding the summer brown of unirrigated knolls and slopes in parks and other places along the seaboard. No experiments that I know of have been made. But, as the home of this unique Ceanothus (C. prostratus) is on the

shaded and cool elevations of elevated parts of the Sierra, I doubt if it would succeed on exposed places in a climate so different as that of the Coast-hills and plains.

University of California. *Edward L. Greene.*

The Polemoniaceæ of the Lake Region.

NINE species belonging to the Polemonium family are indigenous to the region of the great lakes. They represent two genera, Phlox and Polemonium. Besides these, Gilia coronopifolia, the standing Cypress of the garden, a native of the southern states, is reported as an escape from cultivation on the north shore of Lake Erie. These are all that I can ascertain as included within the limits, though one or two species of Phlox may be found within the southern border.

Taking the Phloxes about as they flower, the first to appear in the region of the upper lakes is Phlox bifida, or Beck's Lychnidia. It is apparently confined to Illinois and the western part of Indiana. It comes into the lake region at the head of Lake Michigan, being found in the narrow belt of sandy land which encircles it. Here it is not uncommon in open, grassy places in the woods, or along their margins. I have never seen it at any distance from the woods, though it is called a plant of the prairie. It likes a dry soil, where the most common plants of the season associated with it are Ranunculus fascicularis, Viola pedata, Oxalis violacea and Claytonia Virginica. It comes into bloom near the end of April, and lasts till the early part of June. Phlox bifida is of a diffuse and prostrate habit, the main stem frequently half-hardy and persisting through the winter under a covering of dried grass and leaves. Hence the plants may be disfigured at the time of flowering by the partially dead leaves of the preceding year. The stems are from three to eight or ten inches long, provided with several erect or ascending branches, three or four inches high. The pale purple or white flowers are so abundant as to largely conceal the foliage and cover the ground when growing close together with a carpet of bloom. The lobes of the corolla are wedge-shaped, each deeply cleft into two oblong divisions, giving to the limb a ten-rayed outline. At the base of each lobe are usually two more deeply colored blue or purple spots, sometimes uniting to form a ring with a raised point for each segment, forming a pretty eye to the flower. The slender tube is quite uniform in color, of a bluish purple tinge. But the limb varies considerably, from white to various shades of purple. Those found near Chicago are prevailingly white, at least when the flowers open, though they may become colored with age, or when picked and placed in a vase change to purple or even to blue.

P. bifida is a western representative of the better-known and much more widely distributed P. subulata, or Moss Pink, of localities east and south. The western limit of the Moss Pink is in Indiana, where it comes into the neighborhood of P. bifida in the vicinity of Lafayette. In the lake region it extends from western New York, through Ontario, to southern Michigan. It is also a plant of dry locations, generally growing in sandy or rocky soil. Being an evergreen, the creeping and matted stems and assurgent branches have a brighter look than those of P. bifida. The segments of the corolla are obcordate, or slightly notched, but are sometimes entire, and the flowers lack the radiate appearance seen in those of P. bifida. They are about as variable in color, the wild forms showing pink, pale rose, purple and white shades, usually with a darker centre. The depressed mats and cushions of plants are covered with flowers in May and June, and enliven many stretches of sand or chert or thinly coated rock with beautiful splashes of color.

The earliest of the taller Phloxes is P. divaricata. It starts a little later than the two preceding, its period of inflorescence being mostly limited to May and early June. Then the damp rich woodlands where it grows are bright with the large and fragrant flowers, often massed in extensive beds. It is a profuse bloomer, displaying from ten to twenty flowers at once in its showy, corymbose cymes. The stems are from one to two feet high, the lower part smooth and often colored with purple; the upper part, with the peduncles and calyx of the flowers, is glandular pubescent. The leaves are but slightly glandular, becoming smooth and somewhat glossy with age. After the flowers are gone, and especially in the early fall when the floral stems have disappeared, the barren, summer shoots springing from the root are a pleasing feature to be met with in the shady woods. Then these prostrate stems, bearing rather short, sessile, ovate leaves somewhat whorled at their ends, and with a shining half-evergreen look, strikingly resemble those of the pretty Fringed Polygala, and may be mistaken for that plant.

The flowers of P. divaricata are among the largest in the genus, being from an inch to an inch and a half across. Many shades occur, prevailingly those with a bluish tinge. The most common are bluish purple, purple, pale or deep lilac, pink, white, or white tinged with blue or pink. The large flowers, their delicious odor, and the deep green of the shapely leaves, make this one of the most charming of the wild Phloxes. It is the most widely spread of any in the Lake region, extending throughout except in the extreme northern part. It goes as far east as Qwebe, the most easterly range of any of the native Phloxes. South of this region it is very common.

P. pilosa is found from the head of Lake Erie to the Saskatchewan, and south-eastward to the Gulf of Mexico and the Atlantic. It accommodates itself to a wider range of soil and other conditions than the rest of the Phloxes of the region—from quite dry sand to the damp, rich soil of the prairie. It is the only Phlox common in the Pine Barrens. It is a denizen of the meadow, the copse and the open wood. The flowers appear a little later than those of P. divaricata, and continue till the middle of July or even later. The whole plant is hairy, the upper part, especially the branches and pedicels of the broad cymes, very glandular-pubescent, so that light bodies adhere to them, and small insects are held fast, as in species of Silene and Pentstemon. The linear, or lanceolate, leaves are very sharp-pointed. The corolla lobes are from round-obovate to oblong, and each is marked at the base with brownish purple spots, forming a handsome eye. The predominating colors are red, but white is not at all rare. The present year the white flowers were in excess at the opening of the season, the brighter ones coming in later. This may have been due to the unusual number of cloudy and rainy days, since the phenomenon was exceptional, and the colored kinds suddenly replaced the white ones when the days became warm and sunny. The most common floral tints are rose, bright pink to nearly red, rose-purple, pale blue and lilac, all shading into one another and into white, in almost endless variety. When the plants are massed in spots scattered about in the damp prairie, sometimes so thickly covering the ground that little else is seen, and in areas to be measured by the acre, they furnish the eye with the richest glow of color, and in brightness verify the fitness of the name, Phlox, which means a flame.

From the latter part of June well on into August P. glabervima is the most common Phlox of the prairies or the open woods and their sunny borders; usually in moist grassy localities, or where there is enough of sunlight for grass to grow freely. It is essentially a prairie or meadow Phlox. The plants are very smooth, and of a pale but glossy green. They are from one to four feet high. The slender stems, stretching up among the grass, lift the bunches of flowers, from three to six or eight inches long, well into the sunlight. The leaves are long and very narrow, and the pairs are so far apart upon the stem as to give it a naked look. The plants are often massed in extensive beds, but their pink flowers are less striking than those of P. pilosa. The lobes of the corolla are quite uniformly roundish, and the flowers in form and size are more nearly like those of P. Drummondii than in most of our wild species, but lack their richness of color. There is often a deeper-colored pink or reddish line traced upon each lobe, a five-rayed star on a paler ground, or the lobes may have a white or pale base pervaded by a red crenellated line.

Two of the panicled Phloxes are represented in the lake flora—P. paniculata and P. maculata. They are mainly southern in their range, coming into the lake-region south of Lake Erie and Lake Michigan. P. maculata is native as far north as southern Minnesota. As both are often cultivated they readily escape, and may be more widely spread in consequence. The wild plants are sparsely found in northern Illinois in rich woods and by the shaded banks of streams.

Polemonium is represented by one species, P. reptans, the Greek Valerian, often cultivated. It is found from western New York to central Minnesota and southward. It is most plentiful in the rich open woods and along their borders, as it does not like dense shade. Some of the finest plants may be seen in clearings, where it flourishes among the litter, or are found persisting by the fence-rows lined with brambles and Hazel. The diffuse stems, ten to twenty inches long, with several often rising from a single root, and the pinnate leaves, with their three to ten pairs of ovate or oblong leaflets, form handsome clumps of lively green. When richly furnished with flowers in May and June, few plants of the woods are more attractive. The short tube and flaring limb make the flowers somewhat bell-shaped, and from this, with the color, they are generally known as Bluebells by country people. They have a light blue color, varying toward lilac, either sky-blue, or more often that peculiar restful shade which the French

have named bleu d'œil, eye-blue. White flowers are also found.

All of these plants are easy to cultivate, and, if not already in the garden, deserve a place there. Trials with Phlox pilosa show that the flowers increase in size and number, and in richness of color, when transferred to a garden-soil. The wide range of soil and exposure to which it adapts itself in its natural condition is also greatly in its favor. They are mostly plants of the open field, delighting in the full sunlight, though some, like P. divaricata and the Greek Valerian, need or do best in partial shade, the former bearing that which is quite dense. Since all spontaneously bear white flowers, the range of color between white and the red and cyanic series show the possibilities of variation in the hands of the skillful gardener. This has not only been demonstrated in the Texan annual, Phlox Drummondii, whose beauty and endlessly varied colors all admire for a bedding-plant, but is shown in the northern perennial, P. paniculata, and its variety or synonym, P. decussata or acuminata, and the crosses between these and P. pyramidalis, which the best authorities identify with P. maculata.

Englewood, Chicago, Ill. *E. J. Hill.*

Foreign Correspondence.

London Letter.

THE exhibitions and conferences at the Royal Horticultural Gardens at Chiswick on Begonias, hardy Ferns, Apricots and Plums, were succeeded by a large and important exhibition of high-class fruit at the so-called International Horticultural Exhibition at Earl's Court, where a horticultural display, strangely enough, was united with the "Buffalo Bill" show.

An exhibition such as that at Chiswick, with the remarkable gathering of Begonias and Ferns, could hardly be seen anywhere but in London. An enormous collection of species of cultivated Begonias came from Kew, with splendid productions from the two great Begonia raisers, Messrs. Laing and Messrs. Cannell. Probably never before have so many species, well grown and correctly named, been seen at one exhibition. But, interesting as this collection of species was, attention was centred in the small group of species which constituted the primitive forms. From these have been created, with phenomenal rapidity, the splendid races of double and single tuberous Begonias, perhaps, at the present day, the most popular class of greenhouse-plants in this country. Mr. Veitch, in an able address embodying the more salient points in the history of florists' Begonias, gave an account of how the race had its origin in the now neglected B. Boliviensis, a species of graceful growth and brilliant flower color, and the small B. Pearcei, with bright yellow flowers and exquisitely mottled foliage. From South America came B. Veitchi and B. rosæflora, which were immediately seized upon by hybridists, and the intercrossing continued until the features of the original parents became so blended that now it is a difficult matter to trace the peculiar characteristics of the primitive species. The contrast between these and the finest productions of Laing and Cannell fully justified the remark that the Begonias of to-day are among the most conspicuous triumphs of English floriculture. And this triumph is peculiarly English, for no foreigner took an active part in its production during the early experiments. The exhibits of Cannell and Laing, who both had marvelous displays of flowers and plants, showed the florists' Begonia up to date, for they both had their latest seedlings in doubles and singles. It is probable that the range of possible tints in Begonias has been exhausted, but Mr. Laing is sanguine of extending the gamut of hues by persistent crossing, and he hopes, moreover, to get a strain with variety of petal markings. He has already Picotee-edged single varieties, and one specimen at Chiswick had broad pure white petals broadly edged with carmine, a most striking variety. While many think that the Begonia is not improved in being cultivated into "six-inch singles" and "Hollyhock doubles," as long as the public admire them and buy them the florists will continue to supply these novelties.

What is now wanted is a new species that will blend with the present race of hybrids and add to it new characters, and such a desideratum may be expected among the new discoveries in Africa and other unexplored regions. When, a few years ago, the island of Socotra yielded its solitary Begonia through Professor Balfour to the English florist, it was immediately put to use in hybridizing, the result being a race of very pretty varieties, especially valuable, as they flower through the winter, those named John Heal and Winter Gem being among the first raised. The fine-foliaged Begonias have of late years had more attention paid to them, and the Continental hybridists have produced some distinct and handsome kinds, such as Arthur Malet. There is an astonishing range of variation in the Begonias of the Rex or fine-foliage type, and in all probability we may see soon the gorgeous flowers of the tuberous section combined with ornamental leafage. Nor has the fibrous-rooted section of the genus, which comprises the bulk of the species, been worked upon much, and some good things may come from their influence. Mr. Watson told us, in introducing the paper he had prepared on the cultivated species, that there are about 400 species of Begonia known, and about half the number are in cultivation at Kew, a large proportion of them being shown on this occasion.

The gathering of highly cultivated specimens of hardy Ferns has seldom, if ever, been surpassed in excellence at a London show, and this was mainly brought about by the well-known hardy Fern specialist, Mr. E. J. Lowe, who was instrumental in bringing the unique collection from the Clifton Zoölogical Gardens, many of the plants in which were in huge pots, and the plants measuring a yard or more across. I had never before seen such a fine collection, and never before realized the fact that the finest forms of hardy British Ferns are in no respect inferior to tropical kinds we admire in hot-houses. Some, indeed, are equal in elegance and texture of frond to the Todeas, among Filmy Ferns, and others, such as the variety of Polypodium vulgare called Trichmanoides, as fine as some of the Trichomanes and Hymenophyllums, apart from their transparency. The wonderful amount of variety among the forms of Scolopendrium vulgare (Hart's-tongue), Lastræa filix-mas (Male Fern) and Athyrium filix-fæmina (Lady Fern) seemed to surprise all who were not specialists in hardy Ferns. The collecting of these varieties has been done for the most part by amateurs in a very quiet way, particularly in the western counties, so that Londoners have not had an opportunity of seeing what a wealth of beauty there is in hardy Ferns. I can see that it is quite possible to have in an unheated fernery all the beauty of form possible in a tropical fernery, not even excepting the delicate Maiden-hair Ferns, for the forms of Adiantum Capillus-veneris are quite as beautiful as the tropical kinds, while miniature Tree Ferns may be made of some forms of Lastræa, as some specimens with clear stems of a foot or more were shown on this occasion.

The late-flowering trees and shrubs, of which we have far too few, now begin to give glints of color to the arboretum, and at Kew the old trees of Sophora Japonica are snowy with bloom, as is also Catalpa bignonioides, which, though it flowers well on the dry gravelly soil, is not nearly so fine as further down the Thames valley. In the neighborhood of Pope's Villa at Twickenham there are some magnificent groups of the tree in full bloom, their great branches leaning over and almost touching the water. Some of the trees are forty feet high, and have as fine heads as any I have seen in southern Europe. C. speciosa is becoming widely distributed, but as yet our tree-planters are not as familiar with its merits as you are in America.

The Paulownia imperialis is not a tree for general planting in England, except, perhaps, along the south coast; but I saw the other day some fine effects obtained by treating it as a "sub-tropical" plant, as is sometimes done in America; the foliage of the strong young shoots was very

massive, and associated with other fine-leaved plants such as Cannas and Ricinus. The plants are cut down every autumn, and in spring they send up vigorous shoots, which are thinned out to three or four, and furnish a mass of immense leaves all summer. To see the Paulownia to perfection in Europe one must go to the sunny south, and I have a pleasing recollection while writing this of the magnificent avenues I saw of it in full flower at the end of April in the gardens of the Villa Borghese and the Pincian Hill at Rome, where the climate exactly suits it. Among other interesting things in the arboretum are the Ceanothuses, the French hybrid varieties of C. azureus, of which there are several in nurseries, but none so fine as the oldest large as L. purpurata, with broad (not reflexing) sepals of pure white, and a lip painted with brilliant tints of purple and crimson. Messrs. Sander also had fine examples of autumn-flowering Orchids, and especially of that noblest of all Vandas, V. Sanderiana, which seems to have dropped out of notice until lately it has been shown splendidly from St. Albans. It would be interesting to find out (if it were possible) how many plants of the original importation of V. Sanderiana are alive now. The hundreds, and perhaps thousands, that were distributed to all parts, not a few to your American collections, would surely have been more in evidence at exhibitions than they have been if it flourished as most growers thought it would. In addition

Fig. 74.—White Oak, near Bedford, Westchester County, New York.—See page 446.

Gloire des Versailles, with its pale purple-blue plumes of flowers. The finest dwarf autumn shrub is the new Hypericum Moserianum, a cross between H. calycinum and H. patulum, between which species the hybrid is exactly intermediate. It has large shallow flowers of bright yellow, with tufts of crimson-lipped stamens. It flowers profusely and continuously, and, in short, is quite a gem among hardy flowering shrubs. The florists, too, have found out that it forces well, and can be had in bloom early in the spring, so that will tend to popularize it more.

At the Earl's Court Exhibition a fine Orchid from the St. Albans Nurseries was Lælia Gravesiæ, a hybrid between L. crispa and L. purpurata. It is an exquisite flower, as to the cream of the autumn-blooming Orchids, Messrs. Williams, of Holloway, had some new plants and Orchids, the latter including the rare little Pachystoma Thompsonianum, which received a first-class certificate, though it has been in gardens for years. The new plants included among Dracænas, D. indivisa Veitchi variegata, a cumbrous name for an elegant plant with narrow leaves striped with yellow, and which will, no doubt, be a popular decorative plant in course of time. Other new Dracænas of the ordinary reddish-leaved type were Miss Glendinning, Mrs. Laird, H. E. Milner and A. Laing, to which first-class certificates of merit were awarded. Carludovica palmæfolia and Cupania elegantissima were two elegant plants for decora-

tive use in Messrs. Williams' group. The great floral feature of the show, however, was the Begonia trophy of Messrs. Laing, who quite surpassed themselves. Never before at any show has such a marvelous array of double and single Begonias been seen. They were arranged in a rising bank with a background of Palms and other foliage, and disposed in groups of one color a yard or so square; the effect was brilliant in the extreme. The colors ranged from pure white through pale and deep yellows and warm orange up to the most intense scarlets and crimsons. The gold medal won by the exhibitors was highly merited.

Kew. *W. Goldring.*

Cultural Department.

The Self-pollination of the Grape.

THE Grape has small greenish blossoms which open in a peculiar and interesting way, and protect the stigmas from outside pollen till they have opportunity to become self-fertilized. The petals form a kind of cap which covers the sexual organs. When the flower opens the petals break away from their attachment at the base, but remain fastened to each other at the top, thus keeping the stigma and anthers covered. Finally the petals curve outward from the base and upward, and the expansion of the stamens usually dislodges the cap. In the nearly related genera, Cissus and Ampelopsis, the petals open at the top and expand in the usual way. The calyx in all Vitaceæ is practically obsolete, and plays no part in the opening of the flower.

An opening bud is shown in Figure 75; *a* being a petal just detached at the base, and curved outward, disclosing a portion of a filament (*b*), and the outline of a part of the pistil. Figure 76 shows the pistil with the cap removed, and illustrates the expansion of the different forms of stamens. If the flower has short filaments, as at *a*, they become reclined (*b*), or recurved (*c*). If the flower has long filaments (*d*) they become erect, as at *e*. This structure of the Grape-flower is of practical interest to the grower, and we are glad to give a study of the subject in a paper read before the American Association for the Advancement of Science at its meeting in Rochester last month by Professor S. A. Beach, of the New York State Experiment Station.

The best time for examining Grape-buds, to find out whether self-pollination takes place before the flower opens, is just at the time when dehisence of the corolla begins. Dehisence usually begins at the base of one of the petals, and extends upward half or two-thirds of its length. Afterward the straightening up of the stamens, if they have long filaments, or the reclining or recurving of the stamens, if they have short filaments, dislodges the calyx, or cap, as it is frequently called, and carries it upward and to one side, thus uncovering the

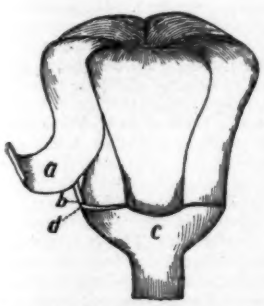

Fig. 75.—The Opening Bud of a Grape-flower.

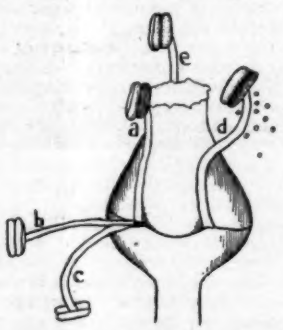

Fig. 76.—Pistil and Stamens of a Grape-flower.

stigma. Occasionally the filaments fail to perform this work, and the cap persists for an indefinite period, as a withered covering on the apex of the young fruit.

The anthers are already opened when dehisence begins, but the pollen has not yet been discharged from them. The dehisence of the corolla allows the moisture to escape from the open anthers, and the pollen, becoming dry, is discharged abundantly on the pistil before the cap is displaced, thus insuring self-pollination before the stigma is exposed to foreign pollen.

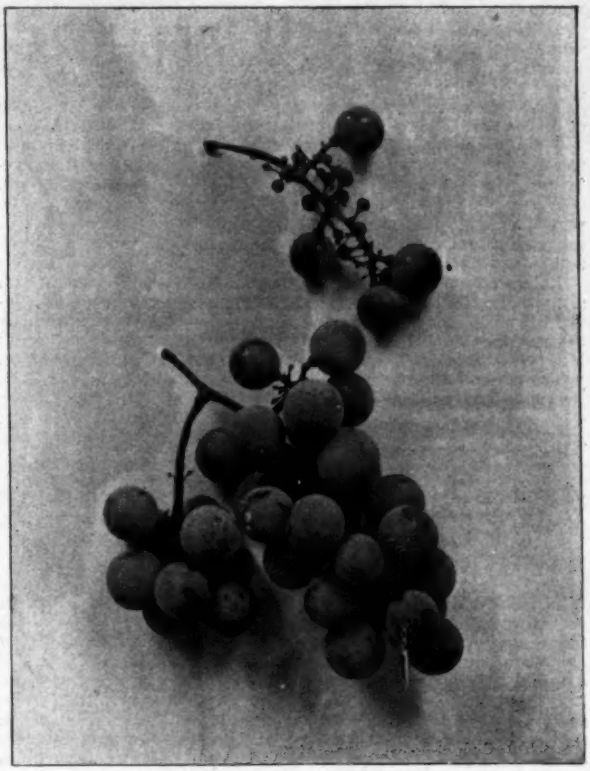

Fig. 77.—Two clusters of the Lindley Grape from the same vine, with abortive fruits showing lack of proper pollination.

In every instance when buds could be found in the right stage of development it was observed that self-pollination occurred before the blossoms opened. The total number of individuals in which self-pollination was thus observed is seventy-seven, distributed among eight species and their hybrids and crosses. Several other varieties were examined without being able to demonstrate that self-fertilization occurs before the blossoms open, but in no case was this true when buds could be found at the proper stage of development above noted, namely, just beginning dehisence.

Clusters of grapes were inclosed in paper bags before the blossoms opened and were allowed to remain covered until the blossoming period had passed. This effectually shut out foreign pollen and made it possible for the stigmas to be pollenized only by pollen from stamens of the same flower or of the same cluster. Some results of these tests may be briefly summarized as follows:

Of four cultural varieties having pure Labrusca blood, three were found to be fully self-fertile, and the fourth nearly so. Their stamens in every case are borne on long filaments and self-pollination occurs before the blossoms open.

Of seventeen hybrids of Vitis labrusca and V. vinifera, three were fully self-fertile. These have long filaments. Whether self-pollination occurred before the blossoms opened was not noted. Another one, though not fully self-fertile, still developed a large per cent. of the ovaries into perfect fruit. It has long filaments. Self-pollination occurs before its blossoms open. Eleven proved to have pollen self-irritant only—that is, the ovaries started to develop and soon fell away or persisted as abortive fruits. Ten of these have short filaments. The character of filaments of the eleventh one was not noted. Self-pollination was observed with seven of this class. Whether it occurs with the other four cannot be stated. One proved to have pollen impotent—that is, the ovaries were not incited to any perceptible growth. It has short filaments and self-pollination occurs before the blossoms open.

One cross of V. labrusca having vinifera blood was found

to have pollen self-irritant only. It has short filaments. With this cross and the seventeen hybrids of V. labrusca and V. vinifera above noted, none but those varieties having long filaments can develop fruit when self-fertilized only. In every instance the vines with short filaments were really pistillate since they failed to develop fruit when self-fertilized only. According to Munson this is commonly true of wild bearing vines of all species of Vitis. A specimen of V. æstivalis transplanted to the vineyard has long filaments and proves to be fully self-fertile.

The Delaware, classed doubtfully as a hybrid of V. vinifera and V. riparia, has long filaments and is fully self-fertile.

Vitis Doaniana, as represented by a specimen transplanted to the vineyard, has pollen self-irritant only, and self-fertilization occurs before the flower opens, but fails to produce fruit.

Pollen that is self-impotent or self-irritant only may prove potent on other varieties. This was found to be true with two of the seventeen hybrids of V. labrusca and V. vinifera above noted.

These experiments show that under the conditions of soil and climate found at Geneva, New York, any one of the following list of grapes will probably prove unfruitful when planted by themselves out of the reach of pollen from other varieties: Massasoit (Rogers No. 3), Wilder (Rogers No. 4), Rogers No. 5, Gaertner (Rogers No. 14), Merrimack (Rogers No. 19), Requa (Rogers No. 28), Aminia (Rogers No. 39), Essex (Rogers No. 41), Barry (Rogers No. 43), Herbert (Rogers No. 44), Salem (Rogers No. 53), Black Eagle, Eumelan and Brighton.

The following hybrids are able to fruit without the aid of pollen from other varieties: Rogers No. 13, Agawam (Rogers No. 15), Rogers No. 24, Rogers No. 32 and Delaware.

Notes on Begonias.

BEGONIA Boliviensis Madelaine is one of the new plants of the season introduced by a French house. This varies from the type only in having flowers of a different shade of red, they being dull carmine or bluish red, while those of the original plants are a light vermilion. They are of the same thin texture as the type. B. Boliviensis is probably little grown now, but it is a very attractive species with its Fuchsia-like habit. As one of the first introductions of tuberous Begonia and one of the parents of the first hybrid Begonia, it has always been an interesting plant to fanciers aside from its beauty. From this species the first of the double-flowering hybrids were produced, and growers of these plants from seed will often find among the seedlings many showing a trace of B. Boliviensis in the long narrow leaves and long lax peduncles. It is only a few years since that the majority of the plants from seed of double kinds supplied by the leading growers, were largely only variations of this type. The present race of hybrids, however, has reached a stage where little trace of B. Boliviensis can be found. The flowers are now wide open, round or nearly so, the plants dwarf and the flower-stems perfectly rigid. While it is pleasant to follow flower fashions, it is sometimes pleasant also to retain plants which have a distinct character different from those in special vogue, and B. Boliviensis is one of the most distinct and graceful of the family.

Begonia pictavensis is a hybrid between B. Scharffiana and B. metallica. It proves to be a strong-growing plant of not very much character in the foliage, which resembles mostly that of B. metallica without its dark veinings, which are so attractive, and they are of thicker substance without the richness of those of B. Scharffiana. The flowers are large and pure white, studded on the reverse of the petals with numerous rosy hairs of a beautiful hue. A cluster of these is very attractive, and they give value to a plant otherwise not especially a great gain. It will be seen that the flowers, while not so large, are of the character of those of B. Scharffiana, and they open more freely than those of this variety, though under some conditions B. Scharffiana is very free and does not maintain its reputation as a producer of imperfect flowers. B. pictavensis is also known as B. Credneri.

Begonia Vernon (B. semperflorens atropurpurea) has proven to be a very satisfactory bedding-plant during a specially hot, dry season. It is always in flower, and these are perfectly weather-proof, rains having no effect with them. The leaves have not scorched under the blazing sun. The purplish tinge in these is very variable, increasing and diminishing during the season, but always giving a rich and distinct effect in masses. As this is a plant quickly propagated it is likely to grow in favor where low-growing neat bedding-plants are useful.

Elizabeth, N. J. *J. N. G.*

Cape Oxalis.—II.

THE prevalent idea is that the Oxalis is a trifoliate plant, having foliage much resembling that of the White Clover, and some of the early botanists named it Trifolium, being acquainted only with the three-leaved kinds, such as O. acetosella and O. stricta, found in the greater part of Europe and America. The species of which I mean to speak are of a very different appearance as, in place of being nearly or quite stemless, they have stems a foot or more in length, along which the small leaves are scattered, the whole plant having, indeed, much the appearance of a Cranberry-plant.

How many of these are distinct species I shall not attempt to say, but as garden-plants there is a considerable diversity of appearance. The bulbs of all of this section are of a light salmon-color, broad at the base and sharp-pointed at the other end. They are usually sold of a size too small to flower well. A good bulb of O. hirta or O. rosacea should be as large as a small Tulip-bulb. These species generally flower very freely for a considerable time and then cease altogether, but they are not unornamental when out of bloom if placed among other plants where their drooping habit gives variety. All of them produce bulbs freely at the root and may also be propagated by cuttings. O. macrostylus is a species with rather dull purple flowers, three-fourths of an inch across, but with rather narrow petals. It is not very desirable, since there are many brighter kinds. A bulb of this variety should be as large as a filbert. The stems are generally not more than nine inches long. The flower of O. hirta is bright red, not bluish purple as in Jacquin's figure, which seems to have faded in the course of the century which has elapsed since it was printed. This is quite commonly offered in the catalogues yet, and is a very desirable kind, though the bulbs furnished are almost always too small. O. hirtella is much like O. hirta in all respects. The color is somewhat purplish, however.

Oxalis multiflora is well named, for its blossoms are more numerous than in any other species of this section. They are about three-fourths of an inch across, of a lilac color with yellow throat, and are borne upon long side-shoots emitted from the main stem from nearly every axil, so that the plant has a thick, bushy appearance. I recommend this as an excellent pot-plant. O. rubella is also very good; its flower is brighter than that of any other variety, except O. fulgida, which is somewhat less floriferous though more brilliant.

Oxalis rosacea has the largest flowers and the largest bulbs of the section, the former being frequently two inches in diameter, light purple with yellow tube. Both in size and in color they are much unlike Jacquin's figure. The only other species of this section which I have grown is O. canescens, which is of smaller growth than most of the others, and produces rather small lilac flowers very profusely and is a very good kind for pot-culture.

Canton, Mass. *W. E. Endicott.*

Kæmpfer's Iris.

THIS Iris is more correctly called Iris lævigata, but is better known as I. Kæmpferi in gardens of to-day. These plants seem, in common with many other gems from Japan, specially adapted to American gardens. They like the sun, cold does not hurt them, and their only enemy is the rose-bug, which infests the plant during the blossoming-season. It is surprising that these Irises are not more common in gardens, since failure is possible only when the roots have not been supplied with sufficient moisture, and, indeed, they may be grown successfully as sub-aquatic plants, for if covered with ice through the winter they come out in the spring all the stronger for their stern discipline. They like best mud or a rich black soil, though they can be made to grow in the poorest soil if plentifully supplied with moisture through the summer months. They are at their best in July. There are no flowers in the hardy flower-garden through the whole season which surpass them in beauty, and it is probably to this fact that they owe their popular name of Poor Man's Orchids. The best time to plant the Japan Irises is in the fall. When the foliage begins to turn yellow they may be divided and reset. Care must be taken to give them rich soil, as they are permanent plants, and need lifting only when the clumps get too large and are starved by remaining too long in one place. The best way to divide them is to lift carefully, and use the spading-fork to separate, not cut, the plants asunder. Treated in this way they will grow stronger and flower more freely the next season. These Irises may also be planted safely in spring if grown in one's own garden, and needing transference only from one position to another; but when the plants are obtained from a distance

it is safest to procure them in the fall, as they start to grow early in the spring, and one locality varies much from another, both in the time when plants are in active growth and the time when it is possible to plant them elsewhere. Both to those who have already a collection of Japan Irises, and to those who have none, the question of what sorts to plant is of great interest, for when they were introduced to the United States and Europe, varieties were, of course, named in each country, according to the fancy of the possessor, so that we can buy sets from different dealers and stand a good chance of getting duplicates though a different name be attached. In order to avoid this it is best to make a selection at flowering-time, as growers of hardy plants are usually glad to send cut flowers of different varieties for selection. In making a collection it is best to avoid the plants which produce flowers of large diameter, as the petals of such flowers lack substance. Preference should be given to plants producing flowers of good substance or the double-flowered varieties, the blossoms of which last are beautiful and durable when cut. When buying from a catalogue the mixed varieties must be avoided. It is better far to pay the price and get good ones to start with, and then by careful selection and seed-saving to raise seedlings at home, which will flower when two years old if the seed be sown in boxes when ripe, brought on in the greenhouse in spring, transplanted when large enough indoors, and later in the open ground. Plants thus treated will all flower, and the poorest of them will be better than low-priced kinds. Indeed, I have raised as good double varieties from seed as could be found among forty sorts imported from Japan.

As with many other plants, the more highly developed the flowers the less of seed we get, and the double varieties of Iris produce seed sparingly. The seed should be gathered when ripe and taken out of the capsule and cleaned, as there is a small worm that finds these seeds a comfortable place for winter quarters, feeding upon their substance as the days shorten.

The poor varieties weeded out from a lot of seedlings should not be thrown away, as they are admirably adapted for naturalizing in waste places where the soil is moist. In such positions the Japan Iris will hold its own against all other plants or weeds, and will flower year after year and reproduce itself from seed. Another point worthy of remark is, that when transplanting in the fall we should resist the temptation to cut off the foliage. The mature grass-like leaves are a great protection to the dormant buds below, and where appearances are not studied too closely the foliage should remain on the plants all winter, more especially if they have been moved, and the same remark applies to many other plants, such as Eulalias, Arundo donax and all Lilies.

South Lancaster, Mass. *E. O. Orpet.*

Eschscholtzia Californica.

AMONG the most satisfactory annual plants, either for outdoor cultivation or for forcing, are Eschscholtzia Californica and its variety crocea. The plants are very easily grown and are most profuse bloomers, the bright orange or yellow flowers forming one of the most conspicuous spots in the garden. The seed may be sown out-of-doors in May, but plants started under glass early in April are more satisfactory, as they mature so much earlier and will often begin to bloom before the hot weather of August sets in. The blossoms appear most freely in cool weather, and in this locality are usually at their best when cut by frost in September. If the seed-pods are removed as soon as formed, the period of blooming may be prolonged almost indefinitely, provided the plants are protected. I have had plants to give a profusion of blossoms for more than two months. If the pods are not removed, however, the vitality of the plant is taxed to develop seed and the later blossoms are small and inferior.

Two or three plants which I had in the greenhouse last winter attracted much attention. In October, after frost had destroyed most of the plants, some young seedlings were removed to the house. They were shifted as needed, and finally, in four and a half-inch pots, were plunged in earth in a cool house, with a night temperature fifty degrees. From the first of March until June, when the house was cleared, the plants bloomed freely and continuously. Two of the plants, when at their best, had more than one hundred open blossoms at once, and the effect was most pleasing.

The chief objection to the Eschscholtzia for cutting is its habit of closing the petals at night. The blossoms last several days, however, and I have found them more satisfactory, and less inclined to close at night, the second or third day after cutting than the first. I have a vase filled with the flowers before me as I write, and though they have been cut four days they are as bright now as when first cut. This plant should be more widely cultivated and more generally found in home gardens.

Orono, Maine. *W. M. Munson.*

Correspondence.

Autumn Flowers at Passaic, New Jersey.

To the Editor of GARDEN AND FOREST:

Sir,—A good example of the Olcott system of making lawn was seen at Woolsons & Co.'s nursery a few days since. Pedigree grass-growing, as it is called, consists in sowing the purest available grass-seed in a sheltered place, as in a frame, where it is carefully cultivated and weeded from all rogues or foreign varieties. The true plats thus produced are cut up into small pieces, from one-quarter to one-half inch in diameter, and planted at some distance apart—in this case nine inches—in carefully prepared ground, to tiller out and fill out the lawn. The lawn here seen was a variety of Agrostis, planted about the middle of May, and now showing a nearly perfect mat of a uniform green. Apparently, the lawn only needed a rolling and the filling of a few vacancies, and was absolutely free from all but the one grass originally planted in small tufts. It will readily be believed that the initial weeding in the seed-bed is labor applied exactly in the right place, and the system seems as economical of labor as successful in producing a lawn of the species of grass desired.

Clematis paniculata, covering a wire trellis several hundred feet long, cannot be passed without note, though the plant has had its share of notice. It may be said, however, that among the numerous plants some were showing flowers larger than the type, but with all the elegance of the species. C. Davidiana, introduced a few years ago with some flourish, does not seem a plant likely to become popular, in spite of its "blue hyacinth-like flowers." Where space is not valuable it may have a certain value in the shrubbery, but its flowers are not very frequent or showy, and they are produced in the axils of the leaves and are practically stemless. The plant also has a certain interest as not being a climber as are most other members of the family. Other species in flower at the same time were C. crispa, C. coccinea, C. flammula, C. stans, C. Viorna, C. tubulosa and C. Pierotti.

Perennial Asters are interesting plants not nearly enough appreciated in our gardens. Unfortunately the names are very much mixed, and at present it is only by observing the plants in flower in nurseries that one can secure a collection without duplicates. The species here, such as A. Novæ-Angliæ and var. rosea, Ptarmicoides, lævis, longifolius, bessarabicus, Herveyi, etc., are said to have been identified by Asa Gray. The dwarf-growing Alpine Aster, which flowers in May, is one of the most satisfactory of the hardy Asters and should not be omitted from the choicest collection of hardy plants. Stokes' Aster (Stokesia cyanosa) was also in flower. This is an attractive composite with light purple flowers of beauty and distinctness, some three or four inches in diameter. A mass of Plumbago Larpentæ, with its neat foliage just beginning to take on bright tints, and covered with its rich blue flowers, reminds me that this is a plant which apparently revels in sunshine. In England, where it is much grown, there are frequent complaints of its doing badly and not flowering.

I noted many other beautiful flowers, Anemone Japonica, Daphne Cneorum (second bloom), Veronicas, Tritomas, Sedums, Rudbeckias, Platycodons and Lobelias, which add so much color to our gardens at this season, but whose glories will be eclipsed by the wonderful coloring which will soon surround us as ripening vegetation is suffused with autumnal tints.

Elizabeth, N. J. *J. N. Gerard.*

Russian Fruits.

To the Editor of GARDEN AND FOREST:

Sir,—In your issue of August 3d, I notice in one of the always readable articles of your correspondent, Dr. Hoskins, a recommendation to the fruit-growers of New York to test the Russian fruits, especially the Apples, with a view to escape the troubles of apple-scab, etc.

This is commendable, because experiments are advisable in every business, especially if indulged in judiciously. The experience of others is an aid to individual judgment. The people of Iowa have tested the Russians zealously for about ten years; they have been urged and led along that path both by precept and example. In 1882 the new Russian fruits came, "a very great multitude," and in 1883-4 a series of disasters

nearly ruined the orchards of the state. Men were ripe for any trial that promised relief. Nurserymen eagerly stocked up with Russian fruit-trees of all sorts. Enterprising salesmen offered them at fancy prices, and everybody was ready to buy.

In an incredibly brief time the nurseries and orchards were testing the strangers. Now, in 1892, ten years from the start, a survey of the field is instructive. South of latitude forty-two degrees I know of no nursery offering Russian fruit-trees, except in a very limited way. Out of over three hundred varieties of Apples, I am propagating only two, and these more and more sparingly. Both are summer Apples, and, in my judgment, must disappear after a few more years, and their places be supplied with others. Cherries and Plums are in the same condition, the Pears nearly so. Whether at the end of another ten years anything but a memory of them will remain to southern Iowa is questionable.

Russian fruits are seldom seen in our markets. What have been offered have been of medium or poor quality. The trees in nursery and in orchard have suffered from various diseases, blight being most fatal. Nurserymen south of forty-two degrees have almost entirely ceased to grow them. North of that, the destruction and loss of credit have not been so great. In short, the whole matter rests upon that of locality, latitude and height above the sea. The centre of origin of the Russian fruits imported is in about fifty-five to sixty degrees of north latitude, and a change of ten or fifteen degrees of latitude is too much. Theory indicated this before the experiment, and experience has confirmed scientific prediction.

In the extreme north of New York Russian fruits may prove desirable. In the great fruit-belt south of forty-two degrees no experience justifies such a hope. The experience of Ellwanger & Barry at Rochester, of the Berckmans in New Jersey and of the very extensive and expensive trials in Iowa and adjoining states forbids it.

Des Moines, Ia. *C. L. Watrous.*

Albino Orchids.

To the Editor of Garden and Forest:

Sir,—In your issue of August 17th one of your correspondents speaks of finding Habenaria fimbriata in its white form near Tannersville, New York. Perhaps it may interest her and others to know that I have found the same near Northeast Harbor, Mount Desert, Maine.

Baltimore. *Mrs. Thomas Baxter Gresham.*

California Roses.

To the Editor of Garden and Forest:

Sir,—There are few places, and perhaps none, in the Union where so many men of affairs devote their leisure to the cultivation of Roses as Oakland. The evidence of this can be seen any day in the abundance of cut roses which are carried across to the city. Many of these amateur cultivators are enthusiasts, and their conversation is apt to centre on the merits of some new or old Rose, for their collections include hundreds of distinct varieties.

That the Rose is well at home in California goes without saying. As a climber it goes skyward like a Wild Grape; as a standard it grows into trees eight and ten feet in height, with a stem fit for a handspike, and as a shrub it rivals in luxuriance the Willows by the brook-side. It requires, as a consequence, plenty of room here. If the directions given in books for other climates were followed, our Roses would be packed together like bristles in a brush.

Some Roses that have a good reputation in the east or abroad are of no value here, while some of our best kinds have little reputation elsewhere. Of the first class we may mention, among the Tea Roses, Marie Guillot, Madam Bravy and Etoile de Lyon; among the Hybrid Perpetuals, General Washington, Madam Charles Wood and Dinsmore, and among the Bourbons, Queen of Bedders and Appoline. Of the other class the following are a few examples: The Tea Rose Laurette, catalogued by only a few growers in the east, grows into a tree eight feet high, with a stem two and a half inches in diameter, in five years from the cutting, and its flowers are exceedingly bountiful, beautiful and constant. Reve d'Or, Noisette, is more valuable than Maréchal Niel. It is a wonderful grower, always in bloom, and the flowers lack but little of being as fine as those of Maréchal Niel. The little Polyantha Rose, Cecile Brunner, so lightly esteemed at the east that half the growers do not list it, within a few feet from where I am writing forms a hedge four feet high, and this would be much higher were it not cut back twice a year. There is scarcely a month in the season when it is not a mass of bloom. The buds have few rivals for boutonnières, and the full-blown flowers, at least two inches across, are beautiful almost beyond comparison for decorative purposes. Our Italian florist says, "Everybody like-a de baby roses." Perle d'Or is a fit companion for Cecile Brunner, and the two are worth more here than all the rest of the Polyantha class.

Of course, the behavior of Roses is not uniform in California, for the state has such a wide range of altitude, latitude and longitude that it affords almost every variety of climate, from perpetual summer to eternal winter.

Oakland, Cal. *H. G. Pratt.*

Cypripedium Edwardii.

To the Editor of Garden and Forest:

Sir,—A seedling Cypripedium of much interest has just flowered in the collection of Mr. H. Graves, Orange, New Jersey, which has been named Cypripedium Edwardii, in honor of the son of Mr. Graves. It is a cross between C. superbiens and C. Fairieanum, and was raised by Messrs. Pitcher & Manda at the United States Nurseries.

The plant is very compact; leaves, about five inches long and one and one-half broad, rounded at the ends, deep green, faintly tessellated and glossy; scape, green, pubescent, erect, monoflorous; flower, large; dorsal sepal, two inches long, white, tinted with green at the base and vinous purple near margin, rayed and reticulated with green, many of the rays speckled with brown; petals, two and one-half inches long, undulated and drooping as in C. Fairieanum, margined with black hairs; the border is vinous purple speckled with black; centre, translucent, with parallel veins running from base to apex; basal third, thickly dotted with black; pouch, two inches long, narrow, pale green, with brighter reticulations dotted at base and on inside with vinous purple, shaded with brown on front; staminode, large, netted with bright green.

Orange, N. J. *Robert M. Grey.*

Recent Publications.

Annals of Horticulture in North America for the year 1891. By L. H. Bailey. New York, The Rural Publishing Company.

All persons who take more than a superficial interest in horticulture will be grateful to Professor Bailey for this record of the labors of a year in his special field, and still more grateful for the assurance it gives that these volumes can hereafter be expected regularly. As the series grows it will be invaluable for reference, a treasury of horticultural knowledge, and a history, let us hope, of steadily growing interest and continued progress. Each of the volumes is much more than a mere witness of current events. The first one, for example, contains a list of kitchen-garden vegetables, and the most important piece of work in the present volume is the elaborate census of our native plants which are, or have been, cultivated.

An examination of the list, which covers sixty pages, will surprise most readers, for the extent to which our fields and woods have enriched the gardens of the world is not generally realized. Professor Bailey estimates that north of Mexico our continent contains 10,150 known species of plants, distributed in 1,555 genera and 168 families. This census makes record of 2,416 species, representing 769 genera and 133 families. Of these species 1,929 are now offered for sale in America; 1,500 have been introduced into England, 487 of which are not in cultivation in America. Nor does it follow that the species introduced into England are all now cultivated there; the record simply shows that they were once introduced there and when this occurred. Many of the southern species were procured by English collectors from the West Indies or from Mexico. Some of these may never have been seen outside of botanical gardens, and a few may have been lost to cultivation.

It is not strange, as Professor Bailey points out, that American plants should have been first cultivated in Europe, where the growing of plants for ornament had been developed into an art while the civilization of this country was yet in its pioneer stage, and, of course, unfavorable to gardening of this character. Besides, it seems to be the rule that horticulturists are attracted by the unfamiliar and strange appearance of exotics, and that novelty is quite as strong an influence as intrinsic merit in favoring the dissemination of plants. Drummond, Fraser, Douglas, and their contemporaries, as well as our own early botanists, with John Bartram at their head, were all assiduous in sending seeds and living plants to the gardens, and especially the botanic gardens, of Europe. It is worth noting that many of these early introductions have been so modified by long domestication that their appearance seems strange to

one who has only known them wild in their native home, and Mr. Dyer, the Director of Kew Gardens, asserts that even in the collection there the feral types are often wanting, and only cultivated forms are represented.

The list of fruits, vegetables and ornamental plants introduced into American trade during the year 1891 includes 884 species and varieties as against 575 for the year before, and 434 for the year 1889. This increase is due partly to the fact that increased experience and facilities enable the authors to make a more complete record. But the introduction of new Roses, Chrysanthemums, Carnations, Cannas and Geraniums, as well as of native plants, was unusually large last year, and shows a broadening and more active trade. Of the 884 introductions 668 are ornamental plants, 108 are fruit-plants and 108 vegetables. Of 188 native plants introduced twenty-four are fruit-plants, and twelve of the ornamental plants have edible fruits. Analyses like these are interesting, as they indicate in a striking way the tendencies, the varying vigor and the shifting fashions of our horticulture.

Other important titles in the Special Annals are the Plant Portraits of the Year, A Directory of the important Horticultural Societies in North America, A Directory of the persons in charge of horticultural work in the Experiment Stations, The Botanic Gardens of the World, Title-index to the horticultural literature of the Experiment Stations during the year, A Subject-index to the same, Horticultural Books of 1891, Tools and Conveniences of the year.

The first part of the volume, or the so-called General Annals, is a compendium of information on a great variety of subjects, which have been carefully selected and skillfully arranged. As an example of the quality of this portion of the *Annals* we quote the following passages on spraying machinery and fungicides:

"In spraying machinery there has been great activity in the manufacture of various styles of knapsack-pumps, and several horse-machines have been put upon the market or have received marked improvements. The most important departure of the year, however, is the labor of the committee appointed by the Association of Agricultural Colleges and Experiment Stations, to consider means by which uniform sizes of fittings can be secured for all spraying-machines. This committee, appointed in November, 1890, consist of W. B. Alwood, of Virginia; D. G. Fairchild, of Washington, D. C., and James Troop, of Indiana. It has secured the agreement of nearly all manufacturers to use standard sizes of threads and other fittings, and the advantages of its labors will be placed before the public for the season of 1892.

"In the treatment of plant diseases, two copper-sprays continue to gain favor, and their use for control of diseases of the Grape has already come to be an established practice among growers. It is a question of but two or three years before the leaf-blight of Quinces and Pears, Apple and Pear scab, and the old Potato-rot will come under the control of the general grower. There is a distinct movement in favor of the ammoniacal carbonate of copper as compared with the Bordeaux mixture, as it is cleaner, cheaper and much more easily used. Among new fungicides there are two which demand record here. The more important is that prepared by the Division of Vegetable Pathology of the National Department of Agriculture last year as 'Mixture No. 5.' It consists of equal parts of ammoniated sulphate of copper and carbonate of ammonia, thoroughly mixed, and put up in air-tight cans. A pound of this dry mixture is used to thirty to fifty gallons of water. The material is cheap, costing about forty-five cents per pound, is easily prepared, and can be kept in the dry state until desired for use. This material, which is essentially a dry eau celeste, has been used with good results upon those fungi for which the ammoniacal carbonate of copper and Bordeaux mixture are employed. Lodeman has found that the chloride of copper possesses merits which entitle it to trial for the common plant diseases. When used at the rate of three ounces in twenty-two gallons of water it gave better results upon Squash-mildew (Oidium erysiphoides, var. Cucurbitarum) than did the Bordeaux mixture."

The last serial issue of *Economic Fungi*, by A. B. Seymour & F. S. Earle, is a double one, including Fasacles iii. and iv., numbers 101–200. In it the authors have confined themselves to "fungous parasites on forest-trees and other woody plants indigenous or cultivated for ornament."

Not less than sixty-eight ligneous plants are enumerated in the list of host plants. Many of these have but a single fungous enemy given, while others bear four representatives, as, for example, the Honey Locust. Five species of Maples are represented, and among these the most conspicuous fungus is the Rhytisma of the White Maple, which produces large irregular shining jet-black patches upon the leaves, familiar to many students of forest-trees. It is found upon the Red Maple also, where it disfigures and damages the foliage. Two anthracnoses are shown, Glœosporium decolorans on Red Maple and G. saccharinum upon the Sugar Maple. This latter does great damage to the leaves, causing them to turn brown prematurely in large patches. There is a showy mildew of the Maple which forms a cobwebby covering to the leaves, and sometimes is particularly destructive to seedlings in the early autumn. A similar mildew of the same genus (Uncinula) is shown upon the Horse-chestnut, but the more common and vastly more destructive enemy to this handsome shade-tree is Phyllosticta sphæropsoidea, which causes the foliage to turn of a reddish brown color early in the season. In August many trees are sadly blighted by this fungus and almost look as if they had been scorched by a fire.

Nine fungi are shown upon eight members of the Rose family. There is a conspicuous parasite upon the Shad-bush that covers the leaves with a dark, almost black coating. When a bush is affected in one part it usually is infested elsewhere, thus giving the plant a peculiar appearance. In Podosphæra Oxyacanthæ we have a good illustration of a mildew that infests a large number of hosts in the same family, such as the Hawthorn, Choke-cherry, Meadow-sweet and Hardhack. When this appears upon a cultivated plant it may be remembered that it breeds abundantly upon wild plants just outside the garden fence. This is likewise true of the Peach curl (Taphrina deformans), which is shown upon leaves of the Chickasaw Plum and the wild Black Cherry. This last also harbors the serious leaf-blight of the cultivated Cherry that has defoliated the orchards in the west of late years.

The Elm family shows eleven fungi, and the Elms proper five. There is a mildew similar to the one upon the Maple, and identical with the one met with upon the various species of Ash and the Beech. It is interesting to note that forest-trees of widely separated orders become the adopted home of the same parasite. Usually a fungus does not go outside of one family, but in this case we have a striking exception. In the Walnut family there is one fungus that is given upon four hosts. This Microstroma Juglandis is one of the most showy of moulds, coating the affected parts of the foliage with a white layer. It is common to both Hicoria and Juglans, and is one of the many instances where the presence of a fungus indicates close relationship.

The largest number of fungi in the century is in the Oak family, no less than twenty-four being enumerated, and half of these are upon members of genus Quercus. Mildews are the prevailing form of parasites. There are no rusts represented nor smuts, while there is a goodly number of blights and a few anthracnoses. One of the most showy and injurious species is Marsonia ochroleuca upon the Chestnut. Others are two leaf spots of the Hazel, and the Anthracnose (Glœosporium Canadense) of the White Oak. This latter has been the subject of frequent remark in all parts of the country, as it causes the premature dying of the Oak-leaves to a conspicuous degree.

Among the Poplars and Willows there are a number of injurious pests, one of which is a genuine rust—namely, Melampsora populina. The most conspicuous fungus here is the black Rhytisma of the various species of Willows. One of the handsomest as well as most common of the mildews is upon the Willows.

Notes.

The horticultural and floricultural work in the French section of the Chicago Exhibition will be placed in charge of Monsieur Le Fevre, head-gardener of the city of Paris, who arranged and superintended the beautiful Trocadéro Gardens at the Paris Exposition of 1889.

Mr. James MacPherson writes to the *Country Gentleman*, that in the yard of the New Jersey State Insane Asylum at Trenton there is a specimen of English Yew (Taxus baccata) which originally came from Stoke Pogis church-yard, England, and it is now eighteen feet high, of a perfect shape, and has a spread of thirty feet.

Speaking of the timber of the Gum-tree, which in England is absurdly called Satin-wood, a Minneapolis writer says that in price it is about the same as that of Yellow Pine, and as a finishing lumber it has all the good qualities of that, with few of its imperfections. It will not sliver when used as flooring and as interior finish is susceptible of high polish.

A correspondent writes that the practice of removing tassels from Indian Corn, to which we alluded on page 384, is practiced largely in southern Europe, where only a few of the male flowers are left to fertilize the ear. The tops are used as green fodder for cattle, which is very scarce during the summer months.

Some months ago we published an appeal for the preservation of Poe's cottage, which stands in a much-neglected condition at Fordham. Now we learn that it is to be preserved, although not on its present site. It has been bought by a well-known Catholic publisher, and will be removed to his grounds, which, however, are in the near vicinity, and transformed into a library and studio for his use.

The recent blueberry season in Maine was a very good one, and surprising accounts have been given of the activity of the canning factories where this fruit is preserved. It was not uncommon, we are told, for 700 or 800 bushels of blueberries to be delivered at the door of a single factory during one morning, and as all had to be canned within the twenty-four hours, operatives were kept at work until one or two o'clock at night. Whole schooner-loads of the canned product were shipped to Boston and other seaports.

At a recent convention of the American Florists in Washington the question, What are the twelve best monthly or everblooming Roses for amateurs? was answered by Mr. P. O'Mara, of New York, and Mr. E. G. Hill, of Richmond, Indiana. Both lists contained the following Roses: Agrippina, Clothilde Soupert, Souvenir de Malmaison and Madame Hoste. To these Mr. Hill added Mrs. George Paul, Crown Princess Victoria, La France, Duchess of Albany, General D. Mertchansky, Sombreuil, Meteor and Grace Darling; while Mr. O'Mara named Hermosa, Perle des Jardins, The Bride, Sunset, Catharine Mermet, Mrs. DeGraw, Bon Silene and Madame Pierre Guillot.

A late number of the *Gardeners' Chronicle* gives the figure of a curious hybrid between a Black Currant and a Gooseberry, in which the hanging fruits resemble a currant, while the leaves resemble somewhat those of the Gooseberry. The fruit appears in bunches of from two to four. They are about the size of black currants, but in color like a red gooseberry, and are covered with fine hairs and destitute of seeds. The flavor partakes of that of a gooseberry and a black currant, and seems to Dr. Masters to be an improvement on both. If gooseberries of improved flavor can be grown in clusters and on a bush without spines, Mr. Culverwell, the producer of this new hybrid, will prove a benefactor to horticulture.

A correspondent of the *Journal of Horticulture* names the following as the best of thirty-six varieties of Sweet Peas raised by Mr. Henry Eckford, and displayed at a recent exhibition in Shrewsbury: Emily Eckford; this approaches a true blue, the wings of a well-marked cerulean tint, but the standard suffused with reddish mauve. Peach-blossom; the wings soft rose, shaded with cerise, the standard rosy red at the base, shading upward to pale pink. Ovid; one of the most richly colored varieties yet raised—a brilliant rosy carmine. Royal Robin; a clear pink, with blush wings and a white keel. Venus; a blush-colored flower, with a suffusion of pale yellow, very distinct. Stanley; a dark flower, with standard and wings brownish purple, almost black. Blushing Beauty; soft pink, suffused with lilac. Lady Penzance; large smooth flowers with a prevailing color of lustrous rose.

The following brief paper was read by Mr. T. T. Swinburne at the last session of the American Association for the Advancement of Science: "It is suggested that the American Association for the Advancement of Science, in the absence of a national flower, request the management of the Columbian Exposition to adopt the Columbine as the flower of the Fair, leaving the national flower, whatever it prove to be, to grow in popularity. Its name comes from the same root as Columbia, a name our country often bears; it is classed with the Aquilegia or eagle variety, because its petals end in spurs resembling the talons of an eagle; it grows in red, white and blue, our national colors; it has five trumpet-shaped petals, corresponding to the five points of the star upon our flag, and these are grouped around a central shaft, similar to the arrangement of the states around the central government; and it is indigenous to the North American continent, a hardy perennial and wild flower that is found in every part of our land, growing even upon the Rocky Mountains, and in the very heart of the country. It is appropriate in name, form and color. Its name suggests Columbia, and its form is the prototype of the Phrygian liberty cap, the head-dress of Columbia, and an exact copy of the cornucopia, the symbol of the Columbian Exposition."

"It is worth one's while" says a recent writer in a Boston journal, "to go to the Parker Memorial Building to see the labor of love which is being done by the young ladies who are interested in the Flower Mission. Inside there are groups of girls sorting the flowers, and around the door stand groups of children, some with baskets, some without, all lingering to obtain their much-prized posies. When the flowers have all been arranged, the work of distribution begins, and the young ladies start about on their errands which are to make so many people happy. At the hospitals, patients, nurses and surgeons are waiting for their visits, and the thankful looks and the grateful words repay them for all their trouble. To the crowded workshops some of the girls go and pass around among the workers, giving to each a bouquet. These are cherished, and when the day's work is done they are taken home to brighten up the ordinarily cheerless rooms in dark tenements. On a single day in July, and not an exceptional day either, 1,594 bunches of flowers were sent out to various institutions, besides some which were given away at the door of the Mission; and, in addition, fruits, jellies and vegetables were largely distributed. Nevertheless, the demand was always greater than the supply, and there is need for all livers in the country or owners of urban or suburban gardens to be constantly reminded of the existence of these missions, and of the infinite pleasure they give to the very poor."

The "Sacred Lotus," Nelumbium speciosum, has found a congenial home in one of the small lakes of Central Park, New York City. It has been established three years, and this season covers an expanse of considerably over half an acre, being, probably, the best example of the plant to be seen in the United States. The plants are thrifty, with leaves of the largest size, and at present hundreds of the noble flowers are open, while innumerable seed-pods show the wealth of bloom of the earlier season. Given a soil in which the tubers may mature properly each season, this Nelumbium will not only grow luxuriantly, but it can be counted on as perfectly hardy. In the large fountain-basin at the head of the Mall there are some exceptionally good specimens of Nymphæa Zanzibarensis, both the blue and red varieties. The tubers are said to be three years old. The large highly colored flowers and ample foliage attract more attention than any of the other varieties in the same basin. N. Devoniensis, N. Sturtevanti and N. dentata are represented, but these night-flowering varieties are not seen to the same advantage here as in such basins as Union Square, where there are electric lights. Masses of the Egyptian Papyrus with the Nymphæas make an effective picture in the upper basin, it not being at all crowded, and there being ample margins of water among the various plants. Abundant spaces of clear water around aquatic plants are the main essential to the perfect harmony and beauty of a water-garden. A tank or a lake covered entirely, even with the choicest plants, is, at its best, commonplace.

At the late Begonia Conference at Chiswick, England, the remarkable evolution of the present race of garden Begonias was illustrated by a collection from Kew, which showed the various stages of its progress from the original forms. In the *Gardeners' Chronicle* the singular fact is stated that several of the original species which formed the starting-points of this remarkable development have apparently disappeared from gardens, the parents having been completely superseded by their more attractive progeny. Historically, this is unfortunate, but the loss is not so great as it seems, for it must be remembered that these plants, unlike Orchids, have not been exterminated in their native haunts, and they can be reintroduced. Again, a much more complete record, both in the way of illustration and verbal description, has been made than was formerly done. It is not long ago since the source of novelties and the origin of crosses were often carefully concealed, and sometimes deliberately misrepresented, in the supposed interest of trade. We agree with Dr. Masters that it would be well if the hybridizers of these plants should in the future make an attempt to secure greater hardiness and greater variety, to form new and distinct races, and that they should give over attempts to produce flowers which are merely larger than they are now. If hybridizers and cross-breeders will follow the natural lines of the flower, will enhance and emphasize them rather than attempt to reduce them all to one uniform circular outline, they will not create flowers which, so far as their form is concerned, might be Hollyhocks or Double Balsams or Camellias or anything else than Begonias.